

Appl. No. 09/974,775
Amdt. dated December 23, 2003
Reply to Office Action of October 24, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Support for the amendments to claims 15 and 17 is found, *inter alia*, in originally filed independent claim 10 and originally filed dependent claim 14. Support for the amendments to claim 19 is found, *inter alia*, in originally filed independent claim 10. Claims 10-12, 15-18, 20, and 21 have been amended to correct for formalities including antecedent basis and typographical errors. Claims 22-38 have been canceled. Support for new claim 39 is found, *inter alia*, in originally filed independent claim 1 and the originally filed specification at page 10, lines 11-15. Support for new claim 40 is found, *inter alia*, in originally filed independent claim 10, originally filed dependent claims 14 and 15, and the originally filed specification at page 10, lines 11-15. No new matter has been added.

Listing of Claims:

Claim 1 (original): A golf ball comprising a syndiotactic 1,2-polybutadiene having a crystallinity between about 5% and about 50%, a mean molecular weight between about 10,000 and about 350,000, and a percentage of 1,2-bonds greater than about 70%.

Claim 2 (original): A golf ball as defined in claim 1, wherein the golf ball comprises a syndiotactic 1,2-polybutadiene having a crystallinity between about 10% and about 40%.

Claim 3 (original): A golf ball as defined in claim 2, wherein the golf ball comprises a syndiotactic 1,2-polybutadiene having a crystallinity between about 15% and about 30%.

Claim 4 (original): A golf ball as defined in claim 1, wherein the golf ball comprises a syndiotactic 1,2-polybutadiene having a mean molecular weight between about 50,000 and about 300,000.

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Claim 5 (original): A golf ball as defined in claim 4, wherein the golf ball comprises a syndiotactic 1,2-polybutadiene having a mean molecular weight between about 80,000 and about 200,000.

Claim 6 (original): A golf ball as defined in claim 5, wherein the golf ball comprises a syndiotactic 1,2-polybutadiene having a mean molecular weight between about 100,000 and about 150,000.

Claim 7 (original): A golf ball as defined in claim 1, wherein the golf ball comprises a syndiotactic 1,2-polybutadiene having a percentage of 1,2-bonds greater than about 80%.

Claim 8 (original): A golf ball as defined in claim 7, wherein the golf ball comprises a syndiotactic 1,2-polybutadiene having a percentage of 1,2-bonds greater than about 90%.

Claim 9 (original): A golf ball as defined in claim 1, further comprising UV stabilizers, photostabilizers, photoinitiators, co-initiators, antioxidants, colorants, dispersants, mold releasing agents, processing aids, inorganic fillers, organic fillers, or mixtures thereof.

Claim 10 (currently amended): A golf ball composition comprising:

a syndiotactic 1,2-polybutadiene having a crystallinity between about 5% and about 50%, a mean molecular weight between about 10,000 and about 350,000, and a percentage of 1,2-bonds of greater than about 70[[]]; and

polymers selected from the group consisting of ionomeric polymers, non-ionomeric polymers, and mixtures thereof;

wherein the ratio by weight of the syndiotactic 1,2-polybutadiene to the polymers ranges between about 5:90 and about 90:5.

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Claim 11 (currently amended): A golf ball composition as defined in claim 10, wherein the ratio by weight of the syndiotactic 1,2-polybutadiene to the polymers ranges between about 10:90 and about 80:20.

Claim 12 (currently amended): A golf ball composition as defined in claim 11, wherein the ratio by weight of the syndiotactic 1,2-polybutadiene to the polymers ranges between about 10:90 and about 70:30.

Claim 13 (original): A golf ball composition as defined in claim 10, wherein the ionomeric polymers comprise copolymeric polymers, terpolymeric polymers, or mixtures thereof.

Claim 14 (original): A golf ball composition as defined in claim 10, further comprising a crosslinking agent, co-crosslinking agent, crosslinking accelerator, or mixtures thereof.

Claim 15 (currently amended): A golf ball composition ~~as defined in claim 14, comprising:~~
a syndiotactic 1,2-polybutadiene having a crystallinity between about 5% and about 50%, a mean molecular weight between about 10,000 and about 350,000, and a percentage of 1,2-bonds of greater than about 70%;

polymers selected from the group consisting of ionomeric polymers, non-ionomeric polymers, and mixtures thereof; and

a crosslinking agent, co-crosslinking agent, crosslinking accelerator, or mixtures thereof;

wherein the ratio by weight of the syndiotactic 1,2-polybutadiene to the polymers ranges between about 5:90 and about 90:5, and the ratio by weight of the crosslinking agent to the syndiotactic 1,2-polybutadiene and the polymers ranges between about 0.1:100 and about 10:100.

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Claim 16 (currently amended): A golf ball composition as defined in claim 15, wherein the ratio by weight of the crosslinking agent to the syndiotactic 1,2-polybutadiene and the polymers ranges between about 0.1:100 and about 5:100.

Claim 17 (currently amended): A golf ball composition ~~as defined in claim 14, comprising:~~
a syndiotactic 1,2-polybutadiene having a crystallinity between about 5% and about 50%, a mean molecular weight between about 10,000 and about 350,000, and a percentage of 1,2-bonds of greater than about 70%;
polymers selected from the group consisting of ionomeric polymers, non-ionomeric polymers, and mixtures thereof; and
a crosslinking agent, co-crosslinking agent, crosslinking accelerator, or mixtures thereof;
wherein the ratio by weight of the syndiotactic 1,2-polybutadiene to the polymers ranges between about 5:90 and about 90:5, and the ratio by weight of the crosslinking accelerator and the co-crosslinking agent to the syndiotactic 1,2-polybutadiene and the polymers ranges between about 0.1:100 and about 20:100.

Claim 18 (currently amended): A golf ball composition as defined in claim 17, wherein the ratio by weight of the crosslinking accelerator and the co-crosslinking agent to the syndiotactic 1,2-polybutadiene and the polymers ranges between about 0.1:100 and about 10:100.

Claim 19 (currently amended): A golf ball composition ~~as defined in claim 10, further comprising:~~
a syndiotactic 1,2-polybutadiene having a crystallinity between about 5% and about 50%, a mean molecular weight between about 10,000 and about 350,000, and a percentage of 1,2-bonds of greater than about 70%;
polymers selected from the group consisting of ionomeric polymers, non-ionomeric polymers, and mixtures thereof; and

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a copolymer having a glycidyl group, hydroxyl group, maleic anhydride group or carboxylic group;

wherein the ratio by weight of the syndiotactic 1,2-polybutadiene to the polymers ranges between about 5:90 and about 90:5.

Claim 20 (currently amended): A golf ball composition as defined in claim 19, wherein the ratio by weight of the copolymer having a glycidyl group, hydroxyl group, maleic anhydride group or carboxylic group to the syndiotactic 1,2-polybutadiene and the polymers ranges between about 1:100 and about 20:100.

Claim 21 (currently amended): A golf ball composition as defined in claim 20, wherein the ratio by weight of the copolymer having a glycidyl group, hydroxyl group, maleic anhydride group or carboxylic group to the syndiotactic 1,2-polybutadiene and the polymers ranges between about 1:100 and about 15:100.

Claims 22-38 (canceled)

Claim 39 (new): A golf ball comprising a cover layer and an intermediate layer wherein at least one of the cover layer and the intermediate layer includes a syndiotactic 1,2-polybutadiene having a crystallinity between about 5% and about 50%, a mean molecular weight between about 10,000 and about 350,000, and a percentage of 1,2-bonds greater than about 70%.

Claim 40 (new): A golf ball comprising a cover layer and an intermediate layer wherein at least one of the cover layer and the intermediate layer includes:

a syndiotactic 1,2-polybutadiene having a crystallinity between about 5% and about 50%, a mean molecular weight between about 10,000 and about 350,000, and a percentage of 1,2-bonds of greater than about 70%;

polymers selected from the group consisting of ionomeric polymers, non-ionomeric polymers, and mixtures thereof; and

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a crosslinking agent, co-crosslinking agent, crosslinking accelerator, or mixtures thereof;

wherein the ratio by weight of the syndiotactic 1,2-polybutadiene to the polymers ranges between about 5:90 and about 90:5, and the ratio by weight of the crosslinking agent to the syndiotactic 1,2-polybutadiene and the polymers ranges between about 0.1:100 and about 10:100.